

Australian Standard™

**Acoustics—Measurement of sound  
insulation in buildings and of building  
elements**

**Part 8: Laboratory measurements of the  
reduction of transmitted impact noise by  
floor coverings on a heavyweight  
standard floor**

**STANDARDS**  
Australia



This Australian Standard was prepared by Committee AV-004, Acoustics Architectural. It was approved on behalf of the Council of Standards Australia on 12 December 2005.  
This Standard was published on 6 January 2006.

---

The following are represented on Committee AV-004:

Association of Australian Acoustical Consultants  
Australian Acoustical Society  
Australian Building Codes Board  
Australian Chamber of Commerce and Industry  
Australian Defence Force Academy  
Australian Hearing  
National Measurement Institute  
RMIT University  
The Royal Australian Institute of Architects  
University of Sydney

---

### **Keeping Standards up-to-date**

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about Standards can be found by visiting the Standards Web Shop at [www.standards.com.au](http://www.standards.com.au) and looking up the relevant Standard in the on-line catalogue.

Alternatively, the printed Catalogue provides information current at 1 January each year, and the monthly magazine, *The Global Standard*, has a full listing of revisions and amendments published each month.

Australian Standards™ and other products and services developed by Standards Australia are published and distributed under contract by SAI Global, which operates the Standards Web Shop.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at [mail@standards.org.au](mailto:mail@standards.org.au), or write to the Chief Executive, Standards Australia, GPO Box 476, Sydney, NSW 2001.

---

*This Standard was issued in draft form for comment as DR 05279.*

Australian Standard™

**Acoustics—Measurement of sound insulation in buildings and of building elements**

**Part 8: Laboratory measurements of the reduction of transmitted impact noise by floor coverings on a heavyweight standard floor**

First published as AS ISO 140.8—2006.

**COPYRIGHT**

© Standards Australia

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 7086 X

## PREFACE

This Standard was prepared by the Standards Australia Committee AV-004, Acoustics Architectural. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

This Standard is identical to ISO 140-8:1997, *Acoustics—Measurement of sound insulation in buildings and of building elements—Part 8: Laboratory measurement of the reduction of transmitted impact noise by floor coverings on a heavyweight standard floor*.

As this Standard is reproduced from an international standard, the following applies:

- (a) Its number appears on the cover and title page while the international standard number appears only on the cover
- (b) In the source text ‘this part of ISO 140’ should read ‘this Australian Standard’.
- (c) A full point substitutes for a comma when referring to a decimal marker

References to International Standards should be replaced by reference to Australian or Australian/New Zealand Standards, as follows:

<i>Reference to International Standard</i>	<i>Australian or Australian/New Zealand Standard</i>
ISO	AS ISO
354 Acoustics—Measurement of sound absorption in a reverberation room	354 Acoustics—Measurement of sound absorption in a reverberation room
140 Acoustics—Measurement of sound insulation in buildings and of building elements	140 Acoustics—Measurement of sound insulation in buildings and of building elements
140-6 Part 6: Laboratory measurements of impact sound insulation of floors	140.6 Part 6: Laboratory measurements of impact sound insulation of floors
	AS/NZS ISO
717 Acoustics—Rating of sound insulation in buildings and of building elements	717 Acoustics—Rating of sound insulation in buildings and of building elements
717-2 Part 2: Impact sound insulation	717.2 Part 2: Impact sound insulation
IEC	AS IEC
60651 Sound level meters	61672 Electroacoustic—Sound level meter
	61672.1 Part 1: Specifications
	61672.2 Part 2: Pattern evaluation tests
60804 Integrating-averaging sound level meters	61672.1 Part 1: Specifications
	61672.2 Part 2: Pattern evaluation tests
	AS/NZS
60942 Sound calibrators	60942 Electroacoustics—Sound calibrators
4476 Electroacoustics—Octave-band-filters and fractional-octave band filters	4476 Acoustics—Octave-band and fractional-octave-band filters

Only international referenced documents that have been adopted as Australian or Australian/New Zealand Standards have been included in this list.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the annex to which they apply. A ‘normative’ annex is an integral part of a Standard, whereas an ‘informative’ annex is only for information and guidance.

## CONTENTS

	<i>Page</i>
<b>1 Scope .....</b>	<b>1</b>
<b>2 Normative references .....</b>	<b>1</b>
<b>3 Definitions .....</b>	<b>2</b>
<b>4 Equipment .....</b>	<b>3</b>
<b>5 Test arrangement.....</b>	<b>3</b>
<b>5.1 General arrangement.....</b>	<b>3</b>
<b>5.2 Details of test arrangement .....</b>	<b>3</b>
<b>5.2.1 Source room.....</b>	<b>3</b>
<b>5.2.2 Receiving room .....</b>	<b>4</b>
<b>5.2.3 Test floor.....</b>	<b>4</b>
<b>5.2.4 Condition of floor surface.....</b>	<b>4</b>
<b>5.3 Preparation and installation of test specimen.....</b>	<b>4</b>
<b>5.3.1 Classification.....</b>	<b>4</b>
<b>5.3.2 Installation.....</b>	<b>4</b>
<b>5.3.3 Size and number of specimen .....</b>	<b>5</b>
<b>5.4 Influence of temperature and humidity .....</b>	<b>5</b>
<b>6 Test procedure and evaluation.....</b>	<b>5</b>
<b>6.1 Generation of sound field .....</b>	<b>5</b>
<b>6.2 Measurement of impact sound pressure level.....</b>	<b>5</b>
<b>6.2.1 Microphone positions .....</b>	<b>5</b>
<b>6.2.2 Averaging time.....</b>	<b>6</b>
<b>6.3 Frequency range of measurements .....</b>	<b>6</b>

6.4	Measurement of reverberation time and evaluation of the equivalent sound absorption area.....	6
6.5	Correction for background noise.....	7
6.6	Position of the tapping machine.....	7
6.6.1	Adjustment of the tapping machine.....	7
6.6.2	Materials of category I.....	7
6.6.3	Materials of category II and III.....	7
7	Precision.....	8
8	Expression of results.....	8
9	Test report.....	9
<b>Annexes</b>		
A	Requirements for the tapping machine.....	10
B	Form for the expression of results.....	12
C	Bibliography.....	14

## AUSTRALIAN STANDARD

**Acoustics—Measurement of sound insulation in buildings and of building elements****Part 8: Laboratory measurements of the reduction of transmitted impact noise by floor coverings on a heavyweight standard floor****1 Scope**

This part of ISO 140 specifies a method for measuring the acoustic properties of floor coverings from the view-point of reducing impact noise transmission. The purpose of this part of ISO 140 is to establish a method for determining the noise reducing value of a floor covering under standard test conditions. The test is limited to the specification of procedures for the physical measurement of sound originating from an artificial source (standard tapping machine) under laboratory conditions and is not directly related to the subjective significance of the results.

This part of ISO 140 is applicable to all floor coverings, whether single or multi-layered, as installed on a standard floor. In the case of multi-layered coverings, they may be factory-assembled or assembled at the test site. The test method applies only to laboratory measurements. It does not contain any provision that permits an assessment of the effectiveness of a floor covering *in situ*.

**2 Normative reference(s)**

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 140. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 140 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 140-1:1997, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 1: Requirements for laboratory test facilities with suppressed flanking transmission.*

ISO 140-2:1991, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 2: Determination, verification and application of precision data.*

ISO 140-6:—<sup>1)</sup> *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 6: Laboratory measurements of impact sound insulation of floors.*

ISO 140-7:—<sup>2)</sup> *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 7: Field measurements of impact sound insulation of floors.*

ISO 354:1985, *Acoustics — Measurement of sound absorption in a reverberation room.*

ISO 717-2:1996, *Acoustics — Rating of sound insulation in buildings and of building elements —Part 2: Impact sound insulation.*

---

1) To be published. (Revision of ISO 140-6:1978)

2) To be published. (Revision of ISO 140-7:1978)